

## CLAIM AMENDMENTS

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1-6. (canceled)

1      7. (previously presented): A method of manufacturing a semiconductor circuit on a substrate,  
2      comprising the steps of:  
3                providing first and second substrate handling robots;  
4                coupling a first process chamber to the first robot so that the first robot can transfer a substrate  
5      into and out of the first process chamber, wherein the first process chamber is a deposition chamber or  
6      a plasma chamber, and wherein the first process chamber is not coupled to the second robot;  
7                coupling a second process chamber to the second robot so that the second robot can transfer a  
8      substrate into and out of the second process chamber, wherein the second process chamber is a  
9      deposition chamber or a plasma chamber, and wherein the second process chamber is not coupled to  
10     the first robot;  
11                coupling one or more pass-through chambers to both the first robot and the second robot so  
12     that both the first robot and the second robot can transfer a substrate into and out of each of the pass-  
13     through chambers, wherein said one or more pass-through chambers include a first pass-through  
14     chamber; and  
15                subsequently performing the sequential steps of:  
16                the first robot transferring a first substrate into the first pass-through chamber;  
17                heating said first substrate within the first pass-through chamber; and  
18                the second robot removing said first substrate from the first pass-through chamber.

1      8. (previously presented): A method according to claim 7, further comprising the subsequent step of:  
2                the second robot transferring said first substrate to the second process chamber.

1      9. (previously presented): A method according to claim 8, further comprising the subsequent  
2      sequential steps of:  
3                the second robot removing said first substrate from the second process chamber;  
4                the second robot transferring said first substrate into one of the pass-through chambers;  
5                the first robot removing said first substrate from said one pass-through chamber; and  
6                the first robot transferring said first substrate to the first process chamber.

1       10. (previously presented): A method according to claim 9, wherein said one pass-through chamber is  
2       the first pass-through chamber.

1       11. (previously presented): A method according to claim 9, further comprising the steps of:  
2               after the step of the second robot transferring said first substrate to the second process  
3       chamber, depositing tantalum or tantalum nitride on the substrate within the second process chamber;  
4       and  
5               after the step of the first robot transferring said first substrate to the first process chamber,  
6       depositing copper on the substrate within the first process chamber.

1       12. (previously presented): A method according to claim 9, further comprising the steps of:  
2               after the step of the second robot transferring said first substrate to the second process  
3       chamber, removing native oxide from the surface of the substrate within the second process chamber;  
4       and  
5               after the step of the first robot transferring said first substrate to the first process chamber,  
6       depositing copper on the substrate within the first process chamber.

1       13. (previously presented): A method according to claim 12, further comprising the steps of:  
2               coupling a third process chamber to the second robot so that the second robot can transfer a  
3       substrate into and out of the third process chamber, wherein the third process chamber is not coupled  
4       to the first robot;  
5               after the step of removing native oxide and before the step of the second robot transferring the  
6       first substrate into one of the pass-through chambers, performing the sequential steps of:  
7               the second robot removing the first substrate from the second process chamber;  
8               the second robot transferring the first substrate into the third process chamber; and  
9               within the third process chamber, depositing tantalum or tantalum nitride on the first substrate.

1       14. (currently amended): A method according to claim 7, further comprising the steps of:  
2               coupling a loadlock chamber to one of said first and second robots so that said one robot can  
3       transfer a substrate into and out of the loadlock chamber, wherein the loadlock chamber is not coupled  
4       to the other one of said first and second robots, and wherein the loadlock chamber is not coupled to  
5       any of said one or more pass-through chambers; and

6 before the step of the first robot transferring said first substrate into the first pass-through  
7 chamber, said one robot removing said first substrate from the loadlock chamber.

1 15. (currently amended): A method according to claim 7, further comprising the steps of:  
2 coupling a loadlock chamber to one of said first and second robots so that said one robot can  
3 transfer a substrate into and out of the loadlock chamber, wherein the loadlock chamber is not coupled  
4 to the other one of said first and second robots, and wherein the loadlock chamber is not coupled to  
5 any of said one or more pass-through chambers; and  
6 after the step of the second robot removing said first substrate from the first pass-through  
7 chamber, said one robot transferring said first substrate into the loadlock chamber.

1 16. (currently amended): A method according to claim 7, further comprising the steps of:  
2 coupling a loadlock chamber to the first robot so that the first robot can transfer a substrate into  
3 and out of the loadlock chamber, wherein the loadlock chamber is not coupled to the second robot, and  
4 wherein the loadlock chamber is not coupled to any of said one or more pass-through chambers; and  
5 before the step of the first robot transferring said first substrate into the first pass-through  
6 chamber, the first robot removing said first substrate from the loadlock chamber.

1 17. (currently amended): A method according to claim 8, further comprising the steps of:  
2 coupling a loadlock chamber to the first robot so that the first robot can transfer a substrate into  
3 and out of the loadlock chamber, wherein the loadlock chamber is not coupled to the second robot, and  
4 wherein the loadlock chamber is not coupled to any of said one or more pass-through chambers; and  
5 after the step of the second robot transferring said first substrate to the second process  
6 chamber, the subsequent steps of:  
7 the second robot transferring said first substrate into one of the pass-through chambers;  
8 the first robot removing said first substrate from said one pass-through chamber; and  
9 the first robot transferring said first substrate into the loadlock chamber.

1 18. (previously presented): A method according to claim 7, further comprising the step of:  
2 providing a resistive heater within the pass-through chamber;  
3 wherein the heating step comprises the step of said resistive heater heating said first substrate  
4 within the pass-through chamber.

1       19. (previously presented): A method according to claim 7, wherein the heating step comprises the step  
2       of:

3                 directing infrared radiation so as to heat said first substrate within the pass-through chamber.

1       20. (previously presented): A method of depositing a copper layer on a substrate, comprising the steps  
2       of:

3                 providing first and second substrate handling robots;

4                 coupling a first process chamber to the first robot so that the first robot can transfer a substrate  
5       into and out of the first process chamber, wherein the first process chamber is a deposition chamber or  
6       a plasma chamber, and wherein the first process chamber is not coupled to the second robot;

7                 coupling a second process chamber to the second robot so that the second robot can transfer a  
8       substrate into and out of the second process chamber, wherein the second process chamber is a  
9       deposition chamber or a plasma chamber, and wherein the second process chamber is not coupled to  
10      the first robot;

11                 coupling one or more pass-through chambers to both the first robot and the second robot so  
12      that both the first robot and the second robot can transfer a substrate into and out of each of the pass-  
13      through chambers, wherein said one or more pass-through chambers include a first pass-through  
14      chamber; and

15                 subsequently performing the sequential steps of:

16                 the first robot transferring a first substrate into the first pass-through chamber;

17                 heating said first substrate within the first pass-through chamber;

18                 the second robot removing said first substrate from the first pass-through chamber;

19                 the second robot transferring said first substrate to the second process chamber;

20                 within the second process chamber, depositing tantalum or tantalum nitride on the substrate;

21                 the second robot transferring said first substrate into one of the pass-through chambers;

22                 the first robot removing said first substrate from said one pass-through chamber;

23                 the first robot transferring said first substrate into the first process chamber; and

24                 within the first process chamber, depositing copper on the substrate.

1       21. (previously presented): A method of depositing a copper layer on a substrate, comprising the steps  
2       of:

3                 providing first and second substrate handling robots;

4       coupling a first process chamber to the first robot so that the first robot can transfer a substrate  
5    into and out of the first process chamber, wherein the first process chamber is a deposition chamber or  
6    a plasma chamber, and wherein the first process chamber is not coupled to the second robot;

7       coupling a second process chamber to the second robot so that the second robot can transfer a  
8    substrate into and out of the second process chamber, wherein the second process chamber is a  
9    deposition chamber or a plasma chamber, and wherein the second process chamber is not coupled to  
10   the first robot;

11      coupling one or more pass-through chambers to both the first robot and the second robot so  
12    that both the first robot and the second robot can transfer a substrate into and out of each of the pass-  
13    through chambers, wherein said one or more pass-through chambers include a first pass-through  
14    chamber; and

15      subsequently performing the sequential steps of:

16       the first robot transferring a first substrate into the first pass-through chamber;

17       heating said first substrate within the first pass-through chamber;

18       the second robot removing said first substrate from the first pass-through chamber;

19       the second robot transferring said first substrate to the second process chamber;

20       within the second process chamber, removing native oxide from the surface of the substrate;

21       the second robot transferring said first substrate into one of the pass-through chambers;

22       the first robot removing said first substrate from said one pass-through chamber;

23       the first robot transferring said first substrate into the first process chamber; and

24       within the first process chamber, depositing copper on the substrate.

1     22. (previously presented): A method according to claim 21, further comprising the steps of:

2       coupling a third process chamber to the second robot so that the second robot can transfer a  
3    substrate into and out of the third process chamber, wherein the third process chamber is not coupled  
4    to the first robot; and

5       after the step of removing native oxide and before the step of the second robot transferring the  
6    first substrate into one of the pass-through chambers, performing the sequential steps of:

7       the second robot removing the first substrate from the second process chamber;

8       the second robot transferring the first substrate into the third process chamber; and

9       within the third process chamber, depositing tantalum or tantalum nitride on the first substrate.